

**SCIENTIFIC AND PRACTICAL CONFERENCE
«INNOVATIONS IN MEDICINE
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CONTRIBUTION OF YOUNG SCIENTISTS»**

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**НАУКОВО-ПРАКТИЧНА КОНФЕРЕНЦІЯ
«ІННОВАЦІЇ В МЕДИЦИНІ
ТА ФАРМАЦІЇ:
ВНЕСОК МОЛОДИХ ВЧЕНИХ»**

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Conclusions: this study demonstrates the potential of combining the Kruskal-Wallis test and probabilistic neural networks for predicting the metabolism of tableted medicines according to the Biopharmaceutics Drug Disposition Classification System. The predictive model showcases the feasibility of utilizing these computational methods to streamline drug metabolism predictions, thereby reducing the time and resources typically required by traditional experimental approaches.

Keywords: pharmaceutical research, computational modeling, drug metabolism.

PROSPECTS FOR THE DEVELOPMENT OF SOFT DRUGS FOR THE TREATMENT OF DIAPER DERMATITIS

T. I. Tatyanych-Radkivska, O. M. Hlushchenko

Supervisor: Candidate of Pharmacy, Associate Professor O. M. Hlushchenko

Department of Pharmacy and Industrial Technology of Drugs

Head of the Department: Doctor of Pharmacy, Professor Zh. Polova

Bogomolets National Medical University

Kyiv, Ukraine

Relevance: diaper dermatitis (DD) is one of the most common skin diseases in children of the first years of life in Ukraine. This disease can occur in any child who needs to wear diapers due to urinary incontinence. Most often, diaper dermatitis affects children aged from one month to two years old, reaching its peak in children aged six months to a year, it also affects 35 to 50% of babies.

With the advent of modern hypoallergenic, breathable disposable diapers the incidence of irritant and allergic contact dermatitis, as well as severe forms of the disease has significantly decreased, diaper dermatitis is still a common dermatological problem. Although it is not life-threatening, it does cause discomfort in newborns, and children, and anxiety for parents and guardians.

The aim of our work is to investigate the problems of emergence and prospects for the development of soft drugs for the treatment of diaper dermatitis.

Methods of research: search, analysis, generalization and systematization of data.

Results: world studies have shown that this disease is most often observed in children aged seven months to one year, among infants the prevalence of diaper dermatitis ranges from 7% to 35%.

Based on a study conducted in the United Kingdom involving more than twelve thousand infants, it was found that 25% of infants developed diaper dermatitis in the first four weeks of life. According to the literature, the incidence of diaper dermatitis in Italy is 15.2%, in Nigeria – 7% and in Kuwait – about 4%.

Diaper dermatitis is an inflammatory skin lesion of the perineal and perianal area as a result of several external factors: moisture, prolonged skin contact with urine and feces, and exposure to detergents, antiseptics, and medications. Water with high and salt content can also negatively affect the skin's protective barrier, reducing its resistance to irritants.

The most common causes of diaper rash are fungal infection caused by *Candida albicans*, which can be both the primary cause of dermatitis and the secondary cause of chronic skin irritation. In neonates, *Staphylococcus aureus* infection is most common. *Staphylococcus aureus*, *Streptococcus pyogenes* may also cause infectious skin lesions.

Insufficient development of sebaceous glands, high skin acidity (6.5-7.0 in infants vs. 5.3 in adults) and an increased tendency to allergic reactions also contribute to the development of inflammation. Mechanical friction of the skin with a diaper, humidity, improper care, antibiotics, and changes in the child's diet can accelerate the development of the disease. Changes in the infants' diet affect the intestinal microbiota and fecal acidity. Breastfeeding is considered a protective factor because it promotes the formation of healthy microflora. Prolonged contact with urine and feces increases the risk of inflammation. Babies who are changed diapers more often are less likely to develop dermatitis.

The main factor in the development of diaper dermatitis is increased due to diaper wear. It promotes friction and maceration of the skin, which makes the skin more susceptible to damage and penetration by microorganisms. Also

changes in skin pH also play an important role. The breakdown of urea in urine increases acidity, which activates enzymes in the feces that further damage the skin. This creates favorable conditions for the colonization of bacteria and fungi, such as *Staphylococcus aureus*, *Streptococcus pyogenes*, and *Candida albicans*.

Symptoms of diaper dermatitis depend on the cause and may vary from child to child. In contact diaper dermatitis, the skin irritated by urine and feces becomes red and shiny, and lesions may appear on the buttocks, thighs, abdomen, and waist. The skin folds are usually unaffected.

In candidal diaper dermatitis, the skin is a deep red color, rashes outside the diaper area, and the child may develop oral thrush. Thrush in the oral cavity, most commonly affecting the folds of skin on the thighs and around the diaper area.

In seborrheic diaper dermatitis, the skin becomes red with yellowish, oily patches, the disease affects not only the diaper area but also the skin folds, often on the face, scalp or neck.

Complications of diaper dermatitis are rare, as the condition can be managed with proper skin care, the use of barrier creams, and timely treatment of infections. However, in exceptional cases or in the absence of treatment, serious consequences may occur, including increased pain, deepening of skin lesions, and the development of bacterial or fungal infections. According to Johns Hopkins University, one such complication is Jacquet's erosive diaper dermatitis.

The management of diaper dermatitis should be comprehensive, taking into account the individual manifestations of each child. Unfortunately, at present there are not enough drugs on the Ukrainian pharmaceutical market for the treatment of diaper dermatitis, which are mainly ointments (48%) and creams (46%), while emulsions and pastes account for only 5% each. According to the ATC classification, the range of medicines for the treatment of diaper dermatitis constitute drugs from several groups: D01 (antifungals for dermatological use), D02 (emollients and protective), D03 (preparations for treatment of wounds and ulcers), D06 (antibiotics and chemotherapeutics for dermatological use) and D07 (corticosteroids, dermatological preparations).

Conclusions: the management of diaper dermatitis should be comprehensive, taking into account the individual manifestations of each child. Unfortunately, at present there are not enough drugs on the Ukrainian pharmaceutical market for the treatment of diaper dermatitis, which are mainly ointments (48%) and creams (46%), while emulsions and pastes account for only 5% each. Therefore expanding the range of dosage forms, taking into account the specifics of the child's skin and the course of the disease is a relevant scientific area.

Key words: diaper dermatitis, emulsion, drug, treatment.

АДМІНІСТРУВАННЯ АНТИМІКРОБНИХ ПРЕПАРАТІВ У НАВЧАЛЬНОМУ ПРОЦЕСІ ПРИ ДОДИПЛОМНІЙ ПІДГОТОВЦІ ФАРМАЦЕВТИЧНИХ ФАХІВЦІВ

Темірова О. А.

Науковий керівник: д.мед.н., проф. Хайтович М. В.

Кафедра клінічної фармакології та клінічної фармації

Завідувач кафедри: д.мед.н., проф. Хайтович М. В.

Національний медичний університет імені О. О. Богомольця, Київ, Україна

Актуальність: згідно з наказом Міністерства охорони здоров'я України від 03.08.2021 №1614, клінічний фармацевт є ключовим фахівцем відділу інфекційного контролю закладу охорони здоров'я щодо адміністрування антимікробних препаратів. Його професійна діяльність включає співпрацю з лікарями для оцінки доцільності призначення антимікробних препаратів, моніторинг антибіотикорезистентності. Тому важливо ще на додипломному етапі забезпечити якісну підготовку фармацевтів з питань лікування інфекційних захворювань, клінічної фармакології антимікробних лікарських засобів, механізмів антибіотикорезистентності.

Мета роботи: проаналізувати підходи додипломного навчання для забезпечення компетентності фармацевтів із питання адміністрування антимікробних препаратів.

Методи дослідження: здійснено аналіз наукової літератури та презентовано власний досвід викладання питань адміністрування антимікробних препаратів на додипломному етапі у процесі підготовки здобувачів вищої освіти за спеціальністю «Фармація».